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NOTES ON THE DISTRIBUTION AND GROWTH OF NORTH DAKOTA CUSCUTAE

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Plants of the genus *Cuscuta*, collected during the past year, led to a revision of the specimens in the North Dakota Agricultural College herbarium, and the list is here given. Dr. J. Lunell of Leeds, N. D., who has the only other extensive herbarium within the state, has kindly loaned me his material of the group.

CUSCUTA EPILINUM Weihe. Commonly attributed to the state, but we have no record of its occurrence; nor has the examination of several thousand samples of flax seed, a large part of them uncleaned, shown any trace of the seeds.

CUSCUTA EPITHYMUM Murr. Not represented, but was found on white clover in a lawn at Fargo in 1912 or 1913. Seeds of this dodder have been found in several samples of white clover seed.

CUSCUTA PLANIFLORA Tenore. Not definitely recorded, but seeds were found in samples of alfalfa seed from near the western line of the state.

CUSCUTA ARVENSIS Beyrich. Fargo, Valley City, Minot, and Logan Co. Two or three instances of its presence in alfalfa fields have come to notice. One collection by the writer, at Fargo, was made along the river bank where it grew upon everything within reach (25 spp.), including such riparian plants as *Xanthium commune*, *Polygonum lapathifolium*, *P. emersum*, *Mentha canadensis*, *Lycopus americanus*, *Stachys palustris*, *Bidens vulgata*, *Mimulus ringens*, and *Scutellaria lateriflora*. I found this dodder at Valley City, growing on *Kuhnistera oligophylla*, *Chamaerhodos erecta* and *Ambrosia psilostachya* in an old sand pit on the hillside.

CUSCUTA INDECORA Choisy. Fort Totten, on *Lotus americanus*.

CUSCUTA CORYLI Engelm. Numerous localities through the eastern and northern part of the state are represented, and the following hosts: *Solidago serotina*, *S. canadensis*, *Aster paniculatus*, *Helianthus tuberosus*, *Chenopodium album*, *Monarda fistulosa* and *Medicago sativa*. I have also observed it on shrubs, *Salix* spp., *Rhus rydbergii*, *Rosa* sp., and *Parthenocissus quinquefolia*.

Our specimens of *C. coryli* have been confused with other species, usually *C. gronovii* Willd. In most of the manuals the capsule is described as "pointed." Small,¹ however, gives "much depressed," which agrees with our plants. The size of the capsules and shape of the calyx lobes are quite variable. The fruiting clusters vary from a



Text-figures 1, 3, 5, 7, of flowers \times about 5, and of portion of corolla (figs. 2, 4, 6, 8) showing one scale \times about 10; the latter drawn from camera lucida sketch. Flowers from preserved material except 1 and 2.

1-2. *Cuscuta coryli*. 3-4. *Cuscuta indecora*. 5-6. *Cuscuta plattensis*. 7-8. *Cuscuta gronovii*.

few capsules to loose, long-stalked cymes or dense masses 1 to 3 inches thick. Specimens collected at Fargo and also some grown in the garden were examined by Mr. F. H. Hillman, of the U. S. Department of Agriculture.

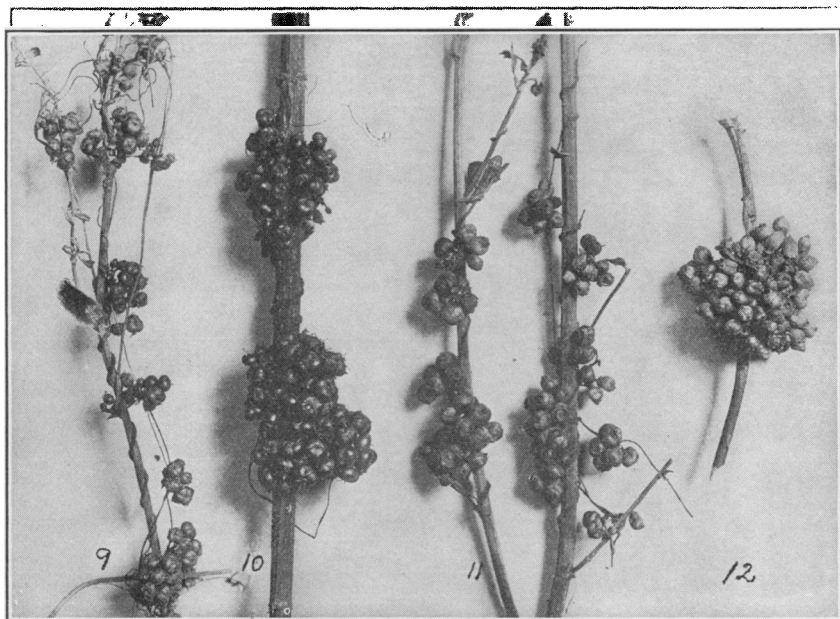
CUSCUTA CEPHALANTHI Engelm. Walhalla; also from Towner (Lunell) on *Artemisia frigida*.

CUSCUTA PLATTENSIS A. Nels. Lisbon, Jamestown, Leeds, Pleasant Lake, Turtle Mts., and Minot. On *Solidago canadensis*, *S. serotina*, *Aster paniculatus*, *Artemisia gnaphalodes*, *Steironema ciliatum*, *Convolvulus sepium*, *Lathyrus palustris*, *Clematis virginiana*, *Humulus lupulus*, *Symphoricarpos occidentalis* and *Salix cordata*.

¹ Small, J. K., Flora of the Southeastern United States, p. 968, 1903.

CUSCUTA GRONOVII Willd. Fargo, on *Solidago canadensis*, *Sanicle marylandica*, *Deringia canadensis*, *Urtica gracilis* and *Urticastrum divaricatum*.

C. plattensis seems closely related to *C. gronovii* which it replaces west of the Red River valley, according to material at hand. Its habitat is the same as that of *C. coryli* (shrubs and coarse herbs along



Text figures 9-12 of dry capsules about one-half natural size. (Photo by W. C. Palmer).

9. *Cuscuta coryli* on *Medicago sativa*. 10. Same on *Helianthus tuberosus*. 11. *Cuscuta plattensis* on *Aster paniculatus*. 12. *Cuscuta gronovii*.

river banks, etc.), in fact, the two species were mixed in two sheets examined. The corolla lobes of *C. plattensis* and *C. gronovii* become more widely spreading or reflexed in older stages, so that a cluster of flowers is likely to give a somewhat different impression from the figures shown.

The presence of *C. coryli* on alfalfa has not been reported previously and is of special interest. The first record for it was obtained in 1914 by planting some seeds taken from a sample of alfalfa said

to have come from Pierre, S. D. In this sample there were about 300 *Cuscuta* seeds per ounce. A number of seed samples have indicated the presence of this species in alfalfa fields along the Missouri river in this state. Some search of such fields in 1914 and 1915 disclosed only an occasional plant. The economic status of *C. coryli* is therefore open to further investigation. One plant in the garden produced about 7,000 seeds, although the species does not seem to produce as much seed as *C. arvensis*. The seeds are *quite similar* to those of *C. indecora*, *plattensis*, and *gronovii*. In cleaning the seed grown from the South Dakota sample it was found that about half of the *Cuscuta* could be screened from the alfalfa seed on account of the larger size of the former. The following measurements were made with a binocular microscope at 50 diameters.

SIZE OF SEEDS OF CUSCUTA

Species	Minimum	Maximum	Av. of 50
<i>C. planiflora</i>9 × .6 mm.	1.2 × .8 mm.	1.00 × .73 mm.
<i>C. arvensis</i>9 × .9	1.6 × 1.3	1.33 × 1.15
<i>C. coryli</i>	1.4 × 1.3	2.6 × 2.1	1.80 × 1.50
<i>C. gronovii</i>	1.4 × 1.4	2.4 × 1.8	1.90 × 1.60
<i>C. plattensis</i>	1.6 × 1.3	2.5 × 2.1	2.10 × 1.70

From plots in the garden the germination of scattered *Cuscuta* seeds was observed as early as April 30, but little growth was made until the last of June and flowering began about the second week in August. *Cuscuta coryli* was killed by frost a little earlier than the *C. arvensis* in the same plot.

SEED LABORATORY,

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